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IB EXTENDED ESSAY

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TOPIC: HOW DID THE USA'S AND USSR'S ACCOMPLISHMENTS IN THE SPACE RACE
EFFECT THE OUTCOME OF THE COLD WAR BETWEEN USSR AND USA?

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ABSTRACT

In this extended essay I have researched the Cold War, the political and military crises that have been lived through by the countries involved in the Cold War, accomplishments in Space Travel and great leaps in Space Technology and the outcomes of those events. My research question was “Did the USA and the USSR's accomplishments in the Space Race effect the outcomes of the Cold War?” I have compiled these research I have done and used it to prove my hypothesis. The hypothesis that I have tried to prove was that the expenses of the Space Race combined with the ongoing political and military crises and the NASA reaching the goals set by the US president made the USSR loose their public support and the prestige gained with the previous accomplishments in the early years of the Space Race and this made it easier for the Soviets to collapse. It turns out that the soviets had accomplished many of their goals like placing an artificial satellite on the earths orbit, sending animals to space, sending a spacecraft to the moon and performing a manned space flight and gained great international prestige and public support from their citizens but later the money used for space research had to be moved to armament costs and this time the United States managed to send the first humans to the Moon. This made the Soviets loose the public support and prestige they have gained before. After the Apollo 11's success there came the Afghan war and public morale in the USSR decreased followed by economic crises and that was how Space Race effected the collapse of the Soviets.

Introduction

After the soviets put the red flag on top of the Reichstag and the United States launched their nuclear bombs on Japan the axis forces were defeated and Europe was divided into the eastern and the western blocs. In the eastern bloc there was the states which were the members of the Warsaw Pact (Bulgaria, Czechoslovakia, Romania, East Germany, Hungary, Poland and the USSR). And on the other side there was the Western Bloc states allied with the North Atlantic Treaty Organization. If it had not been for the Second World War in which even the winning side suffered troop casualties, destruction of infrastructure and depletion of resources the war would go on but neither one of the two sides could go on fighting for a few more years. “The Cold War” is the term used for this historical period of tension between the United States of America and the Union of Soviet Socialist Republics and their allies that lasted from mid 1940's until the late 1980's. The period is called “The Cold War” because there was no actual “war” between USA and USSR. There have been many political crises including the Berlin Blockade, the Korean War, the Vietnam War, the Cuban Missile Crisis and the Soviet-Afghan War but none of these crises led to a war between USA and USSR or a so feared “Third World War”. There was only a preparation for a war which would never happen. This period was more of a rivalry and competition between the two superpowers of the time. One of those competitions was the Space Race.

The Space Race

The Space Race has a significance among other competitions between USA and USSR because it showed how developed the science and technology of one country compared to another is. It became a way to show superiority over the other for the two superpower countries so it was more important for

the governments than competitions like the Olympics. Also the accomplishments in the Space Race provided a source of morale for the citizens of those countries. When Apollo 11 landed on the moon the images were broadcasted to over 600 million people on earth. When these images were broadcasted to this much people the Space Race became a way of propagating political ideologies. Winning the space race in the cold war was like defeating your enemy in a battle. Because of all these reasons these two countries provided huge amounts of government funds for space research.

The Three Peaks of Space Race

Winning in the space race was about accomplishing certain goals in space research that would make all the newspaper headings on earth change. The three peaks of space race which had such effects was the placing of the first artificial satellite on earth's orbit, first manned space flight and first man on another planet/moon. The first animal in space and the first space stations can also be considered as peaks in the space race but since these accomplishments did not have the same effect on the people as the three listed above did they are not included in that list. These peaks in the Space Race provided public support for the governments and created some minor political crises for the rival government and space program.

The Sputnik Crisis

The first one of these peaks, the placing of an artificial satellite on earth's orbit, was achieved with the Sputnik 1 program in 4th October 1957. Sputnik 1 was the first artificial satellite to be placed on earth's orbit. Sputnik 1's purpose was to gather information for atmospheric studies but it did more

than that. This achievement by the soviet space program triggered the “Sputnik Crisis” in USA. The Sputnik program was kept secret until the surprise launch of Sputnik 1 so at that time USA thought that they were superior in space and missile technology. In 4th October 1957 the soviet space agency launched a 83 kg satellite named Sputnik 1 (literally meaning co- traveler) with an ICBM designed to carry nuclear warheads and the next day everyone was talking about this event. USSR started using this accomplishment as a propaganda tool. Newspapers were writing about Sputnik 1. There were even Soviet stamps with Sputnik 1's drawing on them. “SOVIET FIRES EARTH SATTELITE INTO SPACE; IT IS CIRCLING THE GLOBE AT 18,000 M.P.H.; SPHERE TRACKED IN 4 CROSSINGS OVER U.S.” (heading of the New York Times 4 October 1957). Midnight-and London hears the first signals SPACE AGE IS HERE” (heading of Daily Express 4 October). "an intercontinental outer-space raspberry to a decade of American pretensions that the American way of life was a gilt-edged guarantee of our national superiority"(American congresswoman Clare Boothe Luce referring to Sputnik 1's beeps). By that time rocket scientists and astronomers in the United States were working on the Project Vanguard but the project was far from being complete. After the “surprise launch” USA tried to respond with the Project Vanguard and pushed the scientists to their limits and made them complete the project before its original launch date but there have been two failed launch Attempts by USA, Vanguard TV3 in 6th December 1957 and Vanguard TV3 Backup 5th February 1958. These two failed attempts made the Sputnik Crisis grow worse for USA. At the beginning only the Soviet Space Agency was achieving their goals but now both the Soviets were doing well and the US was failing to do so. After the failures of Project Vanguard 29th July 1958 Dwight Eisenhower President of USA signed the National Aeronautics and Space Act and founded NASA. In 1959 the US congress increased the budget of National science Foundation to 134 million \$. In 1968 the NSF budget had reached nearly 500 million \$.

The First Live Animal on Space

Following the first big accomplishment by Sputnik 1 USSR launched another satellite named Sputnik 2 on 3th November 1957. Sputnik 2 was carrying the first living animal to go to space, a dog named Laika. The launch was to see whether a live creature could live in outer space or not. It was planned that Laika would live for 10 days without running out of oxygen and the Soviet Space Agency said everything had gone according to the plan but later in 2002 Russian sources revealed that she lived only for a few hours because of some heating problem. Although carrying an earthling into space seems to be more important than placing a satellite on orbit Sputnik 2 did not have the same effect that Sputnik 1 had. The reason for this might be that the first satellite had enough effect to start the space race and make USA take action and do some launching attempts so the second did not seem to have the same effect. The press and the people had somehow lost their interest on the topic because USA's failed launch attempts had already evoked enough public attention and the Soviets launching another spacecraft and putting a dog in it had much less effect on people's minds. And also what the Soviet Space Agency did was just to send a dog into outer space not to send and bring it back they said that the dog Laika died after running out of oxygen. If it had been the other way round, if the Soviet Space Agency had accomplished to bring Laika back alive after sending her to outer space, then it might have had a greater effect on the media and people's minds because bringing a dog back means that a human can also be brought back.

The Secret Behind the USSR's Early Success

These early accomplishments in space travel can be related to the highly developed rocketry

technology in the USSR. After the the second World War the rocket scientists who worked in making the famous V2 rockets were migrated to the United States and the US Space Research was mainly based on the rocketry research of the Nazi Germany. The Soviets on the other hand had their own research and techniques developed by Russian rocket scientists like Sergey Korolev and Konstantin Tsiolkovsky ,who is famous for the “Tsiolkovsky's Rocket Equation”.

NASA's Response

After the Soviets conquered space for the second time and the United States had several failed launch attempts the US government increased the space research funds and founded NASA. And in four months after the launching of Sputnik a group of scientists including some American scientists like Dr. James Van Allen, who is famous for the Van Allen Radiation Belt named after himself, managed to build the Explorer 1, NASA's first artificial satellite that did orbit the earth. In February 1 1958 Explorer 1 was launched and it was seen as the NASA's response to the Soviet Space Agency's sputnik launches. Explorer 1 detected the Van Allen Radiation Belt. Indeed it was Sputnik 2 which detected the Radiation Belt first but the significance of high radiation was not realized until the launch of Explorer 1. The discovery of the Van Allen Radiation Belt was a huge leap in astrophysics which later provided the explanation for polar aurora and earth being immune to cosmic radiation but people were not interested in that. What interested people and the media was that the United States had finally managed to get into the space race. Some historians suggest that the launch date of Explorer 1 should be the beginning of the Space Race because there was only one competitor in the race up till that date but others say the launch of Sputnik 1 is the actual date because it started the whole Space Race. From this

moment on the Soviets would have a rival in Space Race.

More Important Matters to Attend

After Explorer 1 NASA placed the first solar powered satellite in March 17 and the first communications satellite in December 18. The Soviets responded to this by firing a rocket and reaching earth escape velocity on the earth's orbit for the very first time with the Luna 1 project in January 2 1959 and with Luna 2 the Soviets fired a spacecraft on the moon surface but the people and the media had lost their interest on the subject. Space Race became a part of everyday life. The new achievements were followed by great discoveries in space research but it was not enough to get public attention. At that time the greatest news was the revolutionary war in Cuba. In January 4 1959 guerrilla troops led by Ernesto Guevara entered the city of Havana and 3 days later in January 7 the United States recognized the new Cuban government. A new communist government in Cuba had a higher priority than the Space Race. It was one of the most important dates in Cold War era. Research was carried out and launches were made but the topic did not receive as much interest as it did before until the next great leap in space research.

Yuri Gagarin Goes to Space

In April 12 1961 Vostok 3KA (literally meaning : the east) spacecraft designed by soviet rocket scientists Sergey Korolyov and Kerim Kerimov was launched and placed on the earth's orbit inside the space craft there was the first man to go into space, Yuri Alexeyevich Gagarin. While on Board the spacecraft he said his famous words "I looked and looked but I didn't see God." He orbited the earth

only once in 89 minutes and landed to the west of his initial launch point. When he landed on earth he was a national hero. Going into space had been the ambition of mankind since the archaic ages. Space flight has been the topic of many mythological stories and fairy tales and Yuri Gagarin was the first human to achieve this. Although he could not see him he was the only man to go up into space and look for god. This accomplishment by the Soviet Space Agency was the second great peek in the Space Race and the Soviets had won for the second time. This event attracted great media and public attention but not as much as the Sputnik 1. Maned spaceflight would have driven more attention than a satellite launch but it did not.

Political Cryses Interferes With the Space Race

By that time everyone was thinking about what was going to happen in Vietnam and later in December 1961 the war in Vietnam officially began. The soviet Space Agency and the Soviet government was planning to use this accomplishment as a propaganda tool but it did not work out as they planned. The Vietnam War became the highest priority for both USA and USSR. Although the USSR never got in a full scale war both USA and USSR sent troops to Vietnam and suffered casualties. The USA sent 553 000 troops and 58 159 of them died Soviets on the other hand stationed only 3 000 troops and suffered only 16 casualties. The Soviets did not go to war together with the Vietnamese troops but they supported them with tanks aircrafts ad artillery. Relations between the USSR and the USA had never been that bad before. A war between the USA and the USSR was expected so the space research funds were transferred to arms manufacturing resulting in slower advancement in space technology. The Soviets won for the second time with the Vostok project but they could not use it for their benefit because in such a time of political crises advancements in space travel lost their

importance. The importance International crises overcoming the importance of the Space race and funds being lowered to make extra money for arms manufacturing slowed down space research and because of that future advancements took more time to be completed. The Soviets had landed a spacecraft on the moon and sent a human into space but to combine these two and send a human to the moon took 8 years.

Men on the Moon

In July 21 1969 the National Aeronautics and Space Administration launched Apollo 11 into space with the Saturn V rocket. Apollo 11 was carrying 3 astronauts, Neil Armstrong Buzz Aldrin and Michael Collins. In 4 days the crew reached the moon with the lunar module and After landing on the moon surface for the first time in the history of mankind Neil Armstrong said these words, which would later be the most famous quote in the history of space travel, “It's one small step for a man, one giant leap for mankind.” After that the two astronauts spoke with the president of the United states on phone. The Lunar Module remained on the moon surface, and it still does remain there, but the crew came back to the earth safely with 21 kilograms of sample from the moon. John F. Kennedy, the president of the United States, had said “I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth.” in a speech in May 25 1961. NASA had accomplished that goal and this time they won against the USSR.

The next day the lunar landing was in all newspapers the Washington Post wrote “The Eagle Has Landed—Two Men Walk on the Moon” on July 21 1969. The following week the news was on the Time magazine. The header was “Men on the Moon”. Apollo 11 and the moon landing had even greater effect than the surprise launch of Sputnik 1. The United States were about to loose the war in Vietnam

,which they eventually did, but man landing on the moon had such great effect that people seemed to forget even the ongoing war for a few weeks. With this much media and public attention the United States government could use this as a propaganda tool and they did so. Now the USSR was the losing side and had to come up with an advancement. The Soviet Space Agency built the first spacestation Salyut 1 in 1971 but it was not enough. It was now common belief that the United States had won the space race by sending humans to the moon. But traditionally the Apollo-Soyuz Test Project is said to be the ending of the space race. In the mission The American and Soviet spacecrafts Apollo and Soyuz performed a joint flight and it is said to be the ending of the Space Race because the American and Soviet space agencies were now working together.

End of the Space Race

The Space Race ended with the Apollo-Soyuz Test Project but the effects of its outcomes would not end quite easily. Both of the countries had to provide great amounts of funds for space research for the past few decades and this had some dramatic effects on their economies. The cost of the success in Apollo 11 for the United States is estimated to be between 20-25 billion dollars. Such great expenses had to be taken from other areas where the government and the citizens probably need it more. After spending so much money on space research and failing to achieve the planned outcomes and involving in the Soviet Afghan war after the end of the Space Race the USSR depleted great amounts of government funds. Although it was not the only reason the expenditures and failures in the Space Race effected the outcome of the cold war and made it easier to collapse the Eastern Bloc.

Appendices:

Appendix1: The New York Times article on the surprise launch of Sputnik 1 dated October 6 1957

Appendix2: evening newspaper about the surprise launch of Sputnik 1 released in October 5 1957

Appendix3: the USSR Sputnik stamp with an illustration of the worlds first artificial satellite on it

Appendix4: photograph of the Vanguard rocket explosion

Appendix5: photograph of Yuri Gagarin taken on board Vostok 1

"All the News That's Fit to Print"

The New York Times.

LATE CITY EDITION

NEW YORK, SUNDAY, NOVEMBER 6, 1941

PRICE: 25 CENTS

SOVIET FIRES NEW SATELLITE, CARRYING DOG; HALF-TON SPHERE IS REPORTED 900 MILES UP

Zhukov Ousted From Party Jobs; Konev Condemns Him

MEYNER'S VICTORY IS SEEN IN SURVEY OF JERSEY VOTERS
Democratic Governor Likely to Win Re-election One Month Before Tuesday

President and Class Honor Academy

AFL-CIO TARGET RESIGNS AS CHIEF OF TEXTILE UNION
Faltering Union Hope Group Will Stay in Federation — 2 News Articles Taken

ZHUKOV HUMBLER
He Admits 'Mistakes' — Accused of 'Cult' in Armed Forces

Marshal Is Linked to Stalin In Blame for '41 Reverses
Senior Charges Ex-Chief Distorted History to Create Hero's Role

ORBIT COMPLETED
Aerial Still Is Alive, Sealed in Satellite, Moscow Thinks

4 Times Team Report
A team of New York Times reporters has just completed a survey of political trends and trends in New Jersey. Reports on the election prospects there under the leadership of Governor James H. McGreevey, Mayor John J. Edge, and other officials of the McGreevey administration.

By GEORGE J. BROWN
The survey will be made to appear in the New York Times on Tuesday. The survey will be made to appear in the New York Times on Tuesday.

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Appendix1: The New York Times article on the Russian satellite

Thursday Evening, October 5, 1957 (UP)—Mails United Press Price: Five Cents

Russians Win Race To Launch Earth Satellite

Man On Threshold Of Space Travel

By DANIEL F. GILMORE
United Press Staff Correspondent

LONDON (UP)—The pulsating radio "beep" of the first manmade earth satellite signalled today to the world that man had crossed the threshold into the age of travel through space.

The Soviet Union announced it had won the race into space by launching an earth satellite Friday, a 184-pound, 22-inch globe now orbiting the earth at 18,000 miles an hour, 560 miles up.

Millions of persons throughout the world heard the "beep...beep...beep..." rebroadcast today by local stations and realized that man had taken his first faltering steps into the new era.

Launching of the satellite was a tremendous victory for science. It was a more tremendous victory for Soviet propaganda to be able to trumpet to the world the Russians were the first to break through the frontiers of space.

Bolsters ICBM Claims
Bolstered Russian claims to

How To Spot Satellite

By UNITED PRESS

Here's how to look for the Russian earth satellite which will be whizzing through the sky at 18,000 miles an hour.

The best time to spot it is at dawn or dusk when the sky is semi-dark. There is a chance that it could be seen if it travels across the face of the moon at night.

The best instruments to use are ordinary binoculars or telescopes. Powerful telescopes won't pick it up because of their narrow fields.

Through optical instruments, the satellite will look like the faintest star which can be seen with the naked eye.

Keep a sharp eye out. The satellite travels so fast it may appear on the horizon for only seconds and chances of spotting it have been estimated at one in a hundred.

U. S. May Speed Up Satellite Program

By JOSEPH L. MYLER
United Press Staff Correspondent

WASHINGTON (UP)—American scientists, caught flatfooted by Russia's epic launching of the man-made moon, indicated the United States may speed its own earth satellite program.

Leaders of the U.S. satellite program also said that it appeared Russia rocketed its heavy pound satellite into a globe-dling orbit with a rocket "too" an intercontinental ballistic missile.

That could mean Russia only has beaten this country in the frontiers of space, but also it has been called the "ultimate weapon" for modern day warfare. This country has not yet tested a successful ICBM.

American diplomats also said Russia had scored a notable propaganda victory. The milita

— WEATHER —

WEST VIRGINIA—Partly cloudy with highest in the 60s today and Sunday. Lowest tonight 50 west and 40 east portions.

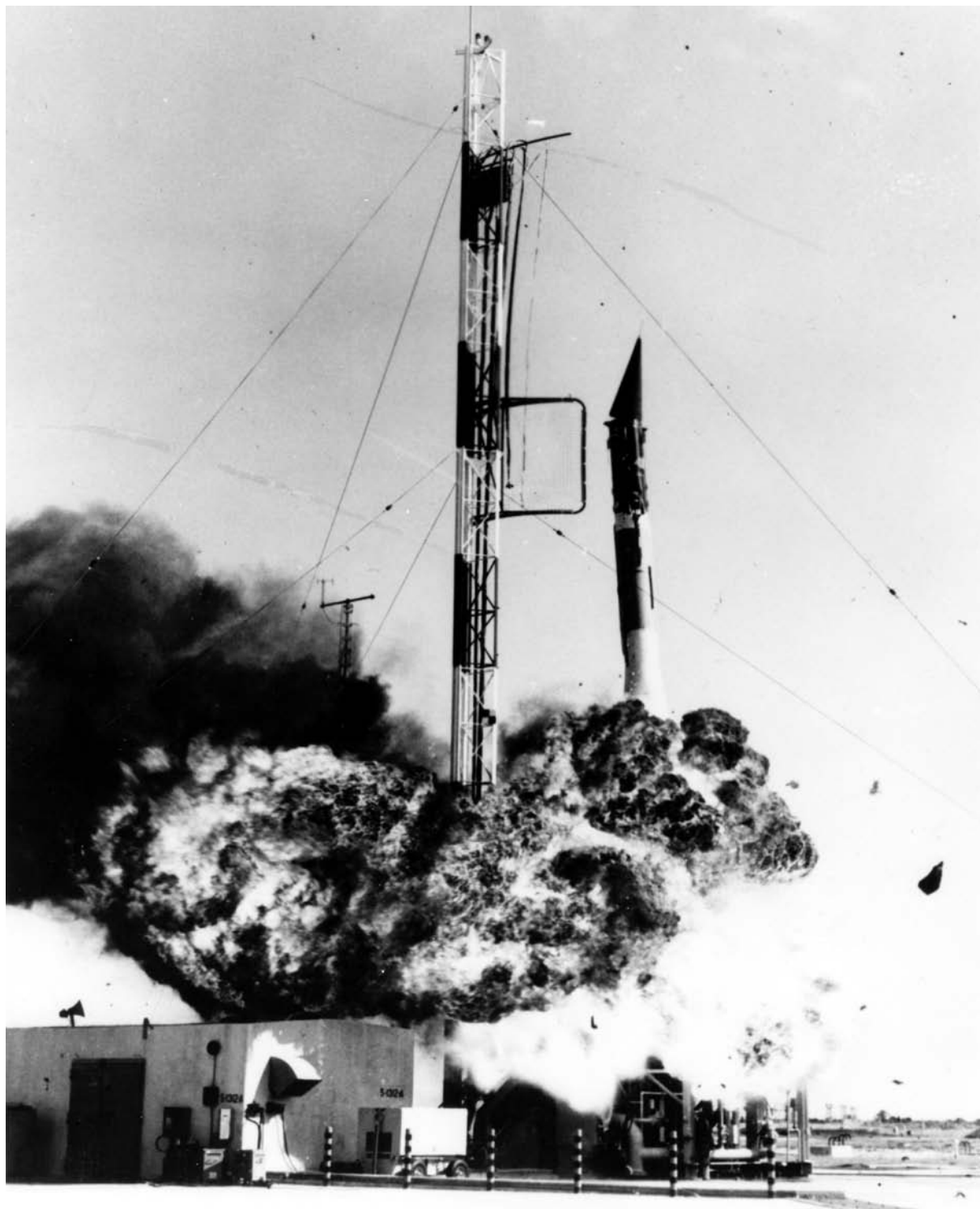
VIRGINIA—Fair with lowest 45 to 50 west and north and 50 to 55 southeast portions tonight, Sunday mostly sunny and a little warmer. Tides on the coast and lower bay will run a foot or two above normal.

Epic-Making

Appendix2: evening newspaper article on Sputnik 1



Appendix3: USSR post stamp illustrating Sputnik 1



Appendix4: photograph of the failed launch attempt of Vanguard 1 rocket



Appendix5: photograph of Yuri Gagarin taken on board Vostok 1

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